

PLEASE AMEND THE SPECIFICATION AS INDICATED BELOW:*Page 14, paragraph beginning at line 22:*

Preferably, since it can be realized with little expenditure, at least one noble metal foil is inserted between the materials to be connected to one another. Said foil is preferably characterized by a thickness of 20 mm to 200 mm, inclusive. Typically, the thickness of the noble metal foil is 30 mm to 150 mm, in exceptional cases up to 250 mm. The subsequent hammering at high temperatures then allows the two materials to be joined together very easily. Micrographs through the hammered joining zone show that a welded seam in which the original foil makes up less than 30 mm of the thickness is formed. The diffusion processes during the actual welding have the effect that a material bond which can withstand great loading is then produced in this region. Instead of rolled platinum foils, gold leaf may also be used. The foils themselves may consist entirely of the alloys mentioned or else merely be provided with a correspondingly thick coating of them, the contact with the components to be connected taking place via the coating. Furthermore, there is the possibility of using not just a single foil but a foil laminate, i.e. the $n+1$ foils can be connected to one another, with $[[N \geq 1]]$ $n \geq 1$.

Page 17, before the paragraph beginning at line 23, add the following:

Further according to the invention, n oxide-dispersion-strengthened materials can be connected at a number of the joining regions which are parallel in a perpendicular sectional plane through the overlapping regions and between two of the components by setting the number of joining regions to be equal to $n-1$.

Page 19, paragraph beginning at line 19:

The arrangement of the two components 3 and 4 to be welded in the welding position takes place according to a particularly advantageous embodiment in a common plane E1, the two components 3 and 4 being arranged such that they overlap in the joining region 5. Joining region 5 is understood here as meaning the region which is characterized by the direct integral connection of the two components 3 and 4. The axial extent I of the overlap defines an overlapping region 6. In this case, the two components 3 and 4 have in a particularly advantageous way, at least in the overlapping

region 6, in each case a bevel 7 and 8, which in the welding position of the two components 3 and 4 is aligned in such a way that the beveled faces [.,.] 9 of the bevel 7 and 10 of the bevel 8, face one another and lie against one another. To avoid slipping of the components 3 and 4 in the welding position with respect to one another, at least the surface-area regions of the beveled faces 9 and 10 which are integrally connected to one another under the effect of heat and force are provided with an increased surface roughness, preferably the entire beveled faces 9 and 10. The surface roughness may in this case be characterized for example by the mean surface roughness or some other characteristic roughness value. The desired roughening of the surface may already be produced by the fabrication, i.e. when the bevel is produced, or else by subsequent surface working of the beveled face. The actual selection is at the discretion of the relevant person skilled in the art.

Page 20, paragraph beginning at line 12:

The chosen method in the case represented is a resistance welding method, preferably a resistance roller seam-welding method, in which the joints obtained by the overlapping arrangement of the oxide-dispersion-strengthened noble-metal alloy components 3 and 4 are locally brought into the kneadable state one after the other progressively in the advancing direction of the components 3 and 4 to be connected to one another by heat being uniformly supplied on both sides of the overlapping region 6 in the heat-affected zone WEZ and plastically unified under pressure, preferably constant pressure, the distance between two neighboring welding points produced when the individual joints are connected being less, considered in the advancing direction, than the dimension of a welding point in this direction. According to the invention, the heating in the heat-affected zone is only performed, however, to a temperature which lies below the melting temperature of the components 3 and 4 to be welded to one another, preferably corresponds to 0.7 to 0.9 times the amount of the melting temperature of the component with the lower melting temperature. The welding device 1 comprises for this purpose at least two welding electrodes 11 and 12, which are assigned to the two components 3 and 4 in the overlapping region 6, opposite one another, respectively act on a component 3 or 4, can be supplied with power via an energy source 13 and in the case represented are rolling electrodes. Both are rotatably mounted and preferably at least one of the two can be driven. The required heat of fusion is induced during the brief action of a current on the welding electrode 11 and 12 as a result of the high transition resistance at the component 4 and 3. The

required contact pressure is in this case produced by means of the electrodes 11 and 12. When configured as rolling electrodes, they serve for transporting the components 3 and 4 in the advancing direction. The melting depth on the oxide-dispersion-strengthened noble-metal alloy components 3 and 4, in particular at the beveled faces 9 and 10 coming into contact with one another, is in this method controllable as a function of the current intensity and/or the rate of advancement and/or the contact pressure p . There may be provided for this purpose a control device 14, which is represented here only very schematically and in each case is coupled to the actuating devices for influencing these parameters. The contact pressure p is realized by variation of the pressing force F , for example by means of the displaceability of the welding electrodes 11 and 12 with respect to the components to be connected to one another, illustrated here by a double-headed arrow at the mounting 15 of the welding electrode 11. The rate of advancement can be influenced by changing the rotational speed $[[D_n]] \Delta n$ of the rolling electrodes 11 and 12. Furthermore, the current intensity can be changed by $[[D_I]] \Delta I$. According to the invention, the energy input takes place via the welding electrodes 11 and 12 in such a way that complete melting does not take place, but rather a connection by diffusion is realized. A material which does not react with the components 3 and 4 to be joined is preferably chosen as the electrode material for the welding electrodes 11 and 12. Therefore, electrodes made of molybdenum, tungsten or their alloys are preferably used.

Page 21, paragraph beginning at line 25:

In the sectional representation I-I according to figure 1b, it is evident that the distance a between two neighboring welding points, here for example 25.11, 25.12, 25.13 and 25.14, produced when the individual joints are connected is less, considered in the advancing direction, than the dimension a_1 of a welding point 25.13 in this direction. With a very high welding point density, and consequently seam density, the integral connection 25 can be produced in the form of a seam 16 with virtually uniform seam thickness d over the extent in the advancing direction.

Page 23, paragraph beginning at line 20:

Figures 2a and 2b illustrate a simplified configuration of the method according to the invention for the pressure welding of oxide-dispersion-strengthened noble-metal alloy components 3.2 and 4.2 according to figures 1a and 1b, dispensing with an arrangement of the components 3.2

and 4.2 in one plane E1. The components 3.2 and 4.2 are arranged overlapping one another in two planes E1 and E2, i.e. dispensing with the respective bevels 7 and 8. The overlapping of the two in this case determines the overlapping region 6.2. The basic setup of the welding device 1.2 corresponds to that described in figure 1a, for which reason the same designations are used for the same elements. With respect to the operating principle of the welding device 1.2, reference can be made to the description relating to figure 1a. Figure 2b illustrates a sectional representation II-II according to figure 2a. Here, too, it is evident that the distance $[[a_2]] a_2$ between two neighboring welding points, here for example 25.21, 25.22, 25.23 and 25.24, produced when the individual joints are connected is less, considered in the advancing direction, than the dimension $[[a_1]] a_1$ of a welding point 25.23 in this direction. With a very high welding point density, and consequently seam density, the diffusion bond 25.2 can be produced in the form of a seam 16.2 with virtually uniform seam thickness d over the extent in the advancing direction.

Page 24, paragraph beginning at line 10:

The seam 16.2 according to figure 2 is also of one row. However, with this type of arrangement of the components 3.2 and 4.2, a two-rowed seam configuration is also conceivable. In this case, a second parallel seam 16.22 would be arranged at a distance $[[a]] a_{16}$ from the seam 16.2. This second seam is represented here in figure 2a by a broken line just to illustrate this possibility, and is preferably produced by means of further welding electrodes, which are not represented here and are arranged parallel to the welding electrodes 11.2 and 12.2.

Page 24, paragraph beginning at line 24:

While a pressure-welding method was assumed in figures 1a to 1c for realizing a diffusion bond 25, figure 3 illustrates figures 3a and 3b illustrate a further possibility by means of a modified fusion-welding method. Both components $[[3.4]]$ 3.3 and 4.3 have a bevel and the arrangement of the two components 3.3 and 4.3 takes place in this case one over the other with a broad surface area in the region of the bevels, i.e. both in the advancing direction and transversely to the latter, as represented in figures 1a and 1b. In the contact region between the two components 3.3 and 4.3, in particular the contact areas 22.3 and 23.3, the overlapping region 6.3 is formed. A TIG welding device $[[20]]$ is used in this case as the welding device 1.3. It comprises at least one electrode 21,

which is assigned to the overlapping region 6.3 in the joining region 5.3 and permits an energy input between the two contact areas 22.3 and 23.3 in the overlapping region 6.3. The two components [[2.3]] 3.3 and 4.3 to be welded to one another are in this case not completely melted during the actual welding operation, but only the upper region 7.3, 8.3. The melting zone of the TIG seam 24 is only about 15 to 25% of the sheet thickness of one of the two components 4.3 or 3.3. Following the production of the TIG seam 24, the latter is mechanically recompacted in a further, second method step by hammering. It is possible here, as represented in figure 3b, for this method step to follow on directly after the welding operation, in that the energy input introduced at the same time determines the température for the hammering operation. Here, too, a corresponding device [[18]] 18.3 is provided for applying local impact loading. This device is arranged downstream of the welding device 1.3 in the advancing direction. In addition, a device 19 (see figure 1d) for heating the diffusion bond 25.3 formed at TIG seam 24 may be arranged upstream of the device 18 18.3. Alternatively, a spatial and temporal separation between the two method steps is possible, as described for example in figure 1d. The end product is in both cases a permanent integral connection 2.3.